

**REMARKS**

Claims 2-3 are pending in this application. By this Amendment, claims 2 and 3 are amended and claims 1 and 4-8 are canceled. No new matter is added.

Applicants note that Takami (US 6,084,418) is relied upon by the Office Action, but not cited in a PTO-892 Form. Applicants respectfully request that the Examiner issue a Supplemental PTO-892 citing Takami.

Applicants elect without traverse the species upon which claims 1-3 read.

The Office Action rejects claim 1 under 35 U.S.C. §102(b) over Takami (US 6,084,418). This rejection is moot because claim 1 is canceled. Withdrawal of the rejection of claim 1 is respectfully submitted.

The Office Action rejects claims 2 and 3 under 35 U.S.C. §103(a) over Takami. This rejection is respectfully traversed.

The Office Action asserts that Takami discloses reverse voltage application period as a parameter for optimization based on the need to completely discharge electric charges between each measurement cycle (citing col. 10, lines 1-16; col. 11, lines 41-57; and col. 17, lines 41-54). However, Applicants respectfully submit that Takami does not disclose or suggest reverse voltage application period set up means for increasing said period of time with an increase in said device impedance, as recited in claim 2.

Two of the passages which the Office Action cites as disclosing reverse voltage application period as a parameter for optimization based on the need to completely discharge electric charges between each measurement cycle (col. 11, lines 41-57 and col. 17, lines 41-54) are completely irrelevant to the subject matter recited in the pending claims.

First, col. 11, lines 41-57 states that the frequency for detecting the element resistance (which corresponds to T2) may be set in accordance with, for example, the operating condition of the engine 10. For example, when there is a relatively small change in the air to

fuel ratio, T2 is set to two seconds. On the other hand, when there is an abrupt change in the air to fuel ratio, T2 is set to 128 milliseconds. However, T2, merely corresponds to the frequency for detecting the element resistance and is not even remotely related to the specified period of time, as recited in claim 2, which instead refers to a duration during which the same voltage as generated by said gas concentration sensor itself ... to said gas concentration sensor. Thus, col. 11, lines 41-57 does not disclose or suggest the subject matter recited in claim 1.

Second, in col. 17, lines 41-54, Takami discloses changing the time constant of the LPF 22 depending on which of the element resistance and the A/F ratio is to be detected. The embodiment described in this passage is directed to solving the problems depicted in Figs. 21a and 21b of Takami. For example, Fig. 21b shows how a low pass filter with an insufficiently large time constant may produce the bumpy line which significantly differs from the line of actual values represented by the dashed line. This passage is irrelevant to the subject matter recited in claim 2 for at least the following reasons. First, these values correspond to the applied voltage VP for detecting the A/F ratio (col. 9, lines 1-2) and so have nothing to do with applying the same voltage as generated by said gas concentration sensor itself ... against the direction of said-impedance detection voltage ... for a specified period of time, as recited in claim 2. Second, the time constant being changed, as described in col. 17, lines 41-54, refers to the time constant of the low pass filter and not to any specified period of time [for] applying the same voltage as generated by said gas concentration sensor itself ... against the direction of said-impedance detection voltage to said gas concentration sensor, as recited in claim 2. Accordingly, col. 17, lines 41-54 does not disclose or suggest the subject matter recited in claim 2.

Additionally, in the third passage, col. 10, lines 1-16, Takami discloses that voltage that has a polarity opposite that of the previously applied voltage is applied for a short period

of time in order to completely discharge electric charges in CiCf in a short period of time. However, nothing in this passage, or in either of the other two passages cited by the Office Action, discloses that the period of time T2-T3 may be optimized. This passage only states that the voltage is applied for a short period of time in order to completely discharge electric charges.

Furthermore, nothing in this passage, or in all of Takami, relates impedance to discharge periods. See Fig. 6 of the pending application. Moreover, nothing in this passage, or in all of Takami, discloses or suggests that if the device impedance increases, then the specified period of time may be increased. Accordingly, nothing in all of Takami discloses or suggests reverse voltage application period set-up means for increasing said specified period of time with an increase in said device impedance. Thus, Takami does not disclose or suggest the subject matter recited in claim 2.


As discussed above, Takami does not disclose or suggest the subject matter recited in claim 2. Claim 3 depends from claim 2. Accordingly, Takami does not disclose or suggest the subject matter recited in claims 2 and 3. Withdrawal of the rejection of claims 2 and 3 under 35 U.S.C. §103(a) is respectfully solicited.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 2 and 3 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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Respectfully submitted,



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Attachment:  
Petition for Extension of Time

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